

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A device for the determination of the position of an instrument-(6) in a vascular system-(8), comprising:

at least one localizer (4, 5) first and second localizers fitted to the instrument-(6), the each indicating a plurality of a spatial positions, position (r₁, r₂) of which can be measured and by means of which the orientation (r₂-r₄) of the instrument, and/or the a shape of an instrument section can be measured;

a data processing unit (7) with a memory in which for storing a vascular map; and (K) is stored, the

a data processing unit being set up to correct measured for correcting the plurality of spatial positions (r₁, r₂) of the first and second localizers localizer (4, 5), taking into account the vascular map (K) and a quality dimension, the quality dimension including weighted components for measuring the deviation of the plurality of spatial positions, measured position and the deviation of the measured orientation of the instrument, and/or the shape of the instrument section from the vascular a layout (8) as represented by the vascular map (K).

2. (Currently amended) TheA device as claimed in claim 1, wherein at least one of the first and second localizers characterized in that the localizer incorporates a magnetic field

sensor (4,5) of an electromagnetic localizing device.

3. (Currently amended) TheA device as claimed in claim 1, ~~wherein~~ characterized in that the data processing unit is ~~set-up~~ further configured to calculate a locally continuous transformation from ~~individual-respective~~ corrections $\{k_1, k_2\}$ of the plurality of spatial positions.

4. (Currently amended) TheA device as claimed in claim 1, ~~wherein~~ the first and second characterized in that ~~at least two~~ localizers (4, 5) are attached to the instrument (6) in a known relative position (d), and in that the data processing unit (7) is ~~set up to take account of this relative position (d) when~~ used for correcting the measured plurality of spatial positions $\{r_1, r_2\}$.

5. (Currently amended) TheA device as claimed in claim 4, ~~wherein~~ characterized in that the data processing unit (7) is ~~set up further to correct the~~ a first spatial position $\{r_2'\}$ of at least one the second localizer (4) ~~is corrected while taking account of using~~ the quality dimension in accordance with the vascular layout of the vascular map (K), so that ~~the final-corrected positions $\{r_1', r_2''\}$ likewise~~ a first spatial position of the first localizer and a second spatial position of the second localizer adopt the known relative position (d).

6. (Currently amended) TheA Device ~~device~~ as claimed in claim 1, ~~wherein~~ characterized in that the data processing unit (7) is ~~set-up~~ further configured to output a warning if the

~~corrected position $\{r_1', r_2'\}$ of the localizer (4, 5) includes an orientation $\{r_2'' - r_1'\}$ of the instrument at a first spatial position of the first localizer and a second spatial position of the second localizer and/or a shape of the instrument section deviating by more than a preset limit value from the measured orientation $\{r_2 - r_1\}$ and/or shape.~~

7. (Currently amended) ~~The device A-Device~~ as claimed in claim 1, ~~wherein~~ characterized by means (1) allowing the position plurality of spatial positions of the localizer (4, 5) relative to the vascular map (K) ~~to be~~ is verified.

8. (Currently amended) ~~The device A-Device~~ according to claim 1, ~~characterized by further comprising~~ an imaging device (1) for generating the generation of the vascular map (K).

9. (Currently amended) A method for the ~~determination of the~~ determining a position of an instrument (6) in a vascular system (8) ~~with the aid of at least one localizer (4, 5) using first and second localizers attached to the instrument (6) and of a vascular map (K), the method comprising the following steps~~ acts of:

a) ~~Measurement of the~~ measuring a plurality of spatial positions position $\{r_1, r_2\}$ of the localizer (4, 5) first and second localizers and of the on orientation of the instrument $\{r_2 - r_1\}$ and/or shape of an the instrument section;

b) ~~Correction of~~ correcting the measured spatial position $\{r_1, r_2\}$ with reference to a vascular map (K) and a ~~quality dimension, the quality dimension including weighted components measuring on the one hand the deviation of the measured~~ plurality of spatial

~~positions~~ position of the localizer (4, 5) first and second localizers and on the other hand the deviation of the ~~measured~~ orientation measured and/or shape of the instrument section from ~~a the~~ vascular layout (8) according to the vascular map ~~(K)~~.

10. (Currently amended) ~~The~~A method as claimed in claim 9, ~~wherein~~characterized in that a spatially continuous transformation is calculated on the basis of individual ~~a~~ plurality of corrections ~~(k₁, k₂)~~.